

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 8/22/07 have been fully considered but they are not persuasive. Dapper discloses a device that affords complete control over the ignition timing and sequence over any finite area of the propellant grain and increases the reliability and reproducibility of the ignition process (column 1, lines 24-26). The number and spacing of the igniters are variable and will depend upon matching the ignition requirements of particular propellant compositions and configurations (column 15-20). The igniter can provide ignition on both surfaces of the propellant grain (column 2, lines 9 & 10). The igniters may be placed on the end of the grain rather than on the grain interior surfaces (column 2, lines 49-52). The explosions or rapid burning of the charge can be localized at any desired point and progress in any desired direction (column 3, lines 9-11).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

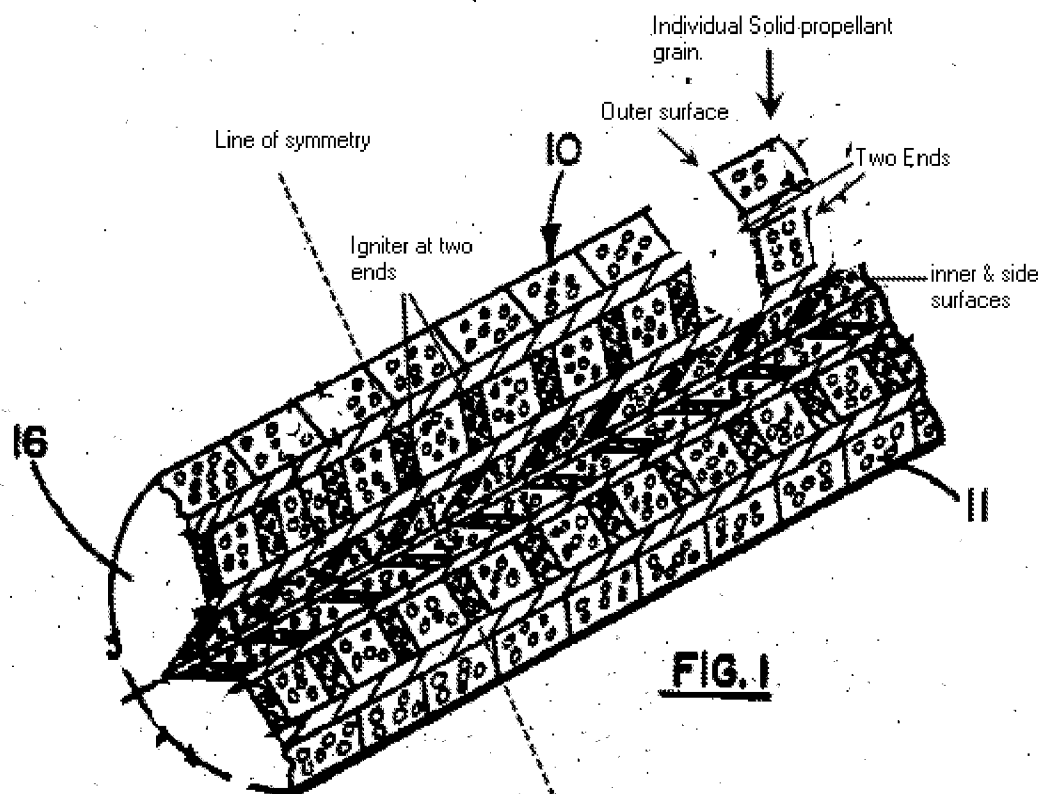
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 32-36 and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by Dapper (US Patent # 3,434,426). Dapper discloses a device and method of producing a gas comprising forming a single grain assembly from a plurality of individual solid propellant grains, the plurality of individual solid propellant grains each having two ends and arranged so that at least

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two of the individual solid propellant grains are shaped and oriented in such a way that they are symmetrical with respect to each other about a line (a line perpendicular to axis 15) and selectively igniting the symmetrical individual solid propellant grains in such a way that the individual solid propellant grains are consumed in a manner that is *substantially* symmetrical with respect to the line. Wherein the step of igniting the at least two individual solid propellant grains simultaneously includes the step of igniting the at least two individual solid propellant grains simultaneously at two ends on each grain. The grains may be ignited in any desired pattern depending on the requirements of the particular propellant compositions and configurations. Wherein the individual solid propellant grains can be arranged in pairs and the individual solid propellant grains in each pair are substantially symmetrical with respect to each other. Wherein the step of selectively igniting may include the step of igniting the individual solid propellant grains only in pairs. Wherein the at least two individual solid propellant grains may be selectively ignited simultaneously. Wherein the at least two individual solid propellant grains are arranged so that they extend from respective first end portions to respective second end portions and the at least two individual solid propellant grains are arranged so as to provide a channel between the first and second end portions of at least one individual solid propellant grain.



Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper as applied to claim 32 above and further in view of Keathley et al. (US Patent # 3,008,417). Dapper discloses the grains and igniters may be configured in any desirable manner in order to achieve the desired burning progression but does not expressly disclose the solid propellant grains

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arranged differently in at least one of size and shape, Keathley et al. does. Keathley et al. teaches a solid rocket grain wherein a pair of the plurality of individual solid propellant grains are arranged differently in at least one of size and shape from the at least two individual solid propellant grains and the at least two individual solid propellant grains are ignited before the pair of individual solid propellant grains. Because both references teach grain assemblies and methods of producing gas, it would have been obvious to one skilled in the art to substitute one grain assembly in one method for the other to achieve the predictable result of producing a gas for propulsion.

Conclusion

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle (Shelley) Clement whose telephone number is 571.272.6884. The examiner can normally be reached on Monday thru Thursday 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 571.272.6873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michelle (Shelley) Clement/
Primary Examiner, Art Unit 3641